

## LNG AND LPG

Through the end of 2004, Indonesia remained the world's leading exporter of LNG, with about 18.8 percent market share in the world and over 33 percent share in Asia and the Pacific. Currently, Indonesia has the capacity to produce a total of 31.6 million tons of LNG at the Arun plant in North Sumatra and the Badak (Bontang) plant in East Kalimantan. However, actual production in 2004 reached only 25.2 million MT, compared to a peak of 29.8 million MT in 1999. LNG is still one of the country's significant foreign exchange earners. LNG exports were valued at \$7.7 billion in 2004, a 17 percent increase compared with the \$6.6 billion earned in 2003. Japan remained Indonesia's top market for LNG, with 64 percent of the total, followed by South Korea (21 percent) and Taiwan (16 percent).

**World LNG Trade 2004**

Exporting	billion m3	percent
Indonesia	33,49	18,8
Malaysia	27,68	15,6
Algeria	25,75	14,5
Qatar	24,06	13,5
Trinidad & Tobago	13,99	7,9
Nigeria	12,59	7,1
Australia	12,17	6,8
Brunei	9,50	5,3
Oman	9,03	5,1
UAE	7,38	4,1
USA	1,68	0,9
Libya	0,63	0,4
<b>Total</b>	<b>177,95</b>	<b>100,0</b>

Source: BP statistical review

Indonesia signed its first long-term LNG contract in 1973, with the first shipment from Bontang in 1977 and the first shipment from Arun in 1978. Indonesia signed a number of additional LNG contracts between 1973 and 1995. Indonesia's LNG exports are under long-

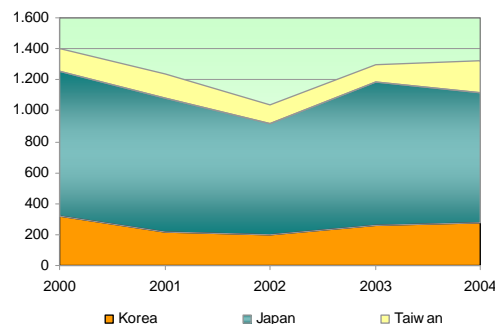
term contracts between Pertamina and its customers. Pertamina's role was reinforced in June 2004 when BP Migas appointed Pertamina as the sole sales agent for LNG sales to South Korea and Taiwan.

### New LNG Sales and Contract Extensions

LNG prices are on an upward trend. Average import prices for Japan, the world's largest LNG importer, increased by 9 percent to \$5.18/mmbtu in 2004 from the 2003 price of \$4.77 – almost double the benchmark negotiated prices for the Guangdong and Fujian LNG terminals in China, which were agreed in 2002 for prices between \$2.40-\$3.00/mmbtu.

Indonesia did not gain the full benefit from rising global prices, as LNG exports have declined due to falling production and a costly domestic fertilizer policy. In 2006, the government planned to cut delivery of a total of 61 cargoes, 52 from Bontang and 9 from Arun. The downward trend in LNG exports is expected to continue at least until 2007.

**LNG Export (in million mmbtu)**



Indonesia finalized two LNG contracts for its Tangguh project in 2004 to supply a

total of 1.3 million MT per year to South Korea's K Power and POSCO. Future LNG contracts are likely to be affected if the government continues with its plan to implement a 25 percent domestic gas obligation. In 2005, a negotiation with a Japanese buyer for a 2010-delivery date LNG contract extension was halted pending a government decision on its gas supply policy.

## *Arun*

The Arun LNG plant is operated by the PT Arun Natural Gas Liquefaction Company, of which 55 percent is owned by Pertamina, 30 percent by Mobil LNG Indonesia Inc. (an ExxonMobil affiliate) and 15 percent by Japan Indonesia LNG Company (JILCO). ExxonMobil/BP Migas is the sole supplier of natural gas to Arun, whose production capacity is now about 6.4 million MT per annum. Aceh gas production peaked in 1995 and gas deliveries to the six-train PT Arun LNG plant have started on a steady decline. ExxonMobil has extracted about 90 percent of the gas reserves in the field and committed reserves will run out entirely in 2018. The Arun facility produced 5.6 million MT in 2004, a decline from 6.6 million MT in 2003, and is expected to discontinue operations in 2014.

Due to the normal decline in the Arun fields there is insufficient gas to supply all domestic fertilizer plants. The government requested that ExxonMobil divert part of its gas production to fertilizer firm Pupuk Iskandar Muda (PIM). The result was a cut in Arun's delivery of export cargoes, which required the GOI to turn to the spot LNG market to meet its contractual

commitment to export buyers. Arun's export commitment was 75 cargoes in 2005. The government needed to acquire between eight and ten LNG cargoes from abroad in 2005 to maintain gas supply to fertilizer plants and still comply with its LNG contractual requirements.

The Arun area fields include: the original Arun field; the South Lhoksukon A and D gas fields, located 15 kilometers from Arun; the Pase A and B gas fields, located north of Arun; and the North Sumatra Offshore (NSO) gas field. The NSO field sits 100 km offshore from the Arun LNG plant.

## *Bontang*

The eight-train (A through H) Bontang facility in Badak, East Kalimantan is the largest LNG plant in the world and has 21.6 million MT of production capacity. The facility marked its 600<sup>th</sup> LNG shipment in November 2005.

The plant is operated by PT Badak NGL Company, which is 55-percent owned by Pertamina, 20-percent by Vico (which in turn is 50-percent owned by BP), 10-percent by TotalFinaElf, and 15-percent by Japan Indonesia LNG Company (JILCO). Gas is supplied from a production sharing arrangement among Pertamina, Chevron, Vico and Total. LNG production from the Bontang facility in 2004 declined to 19.6 million MT from 20.1 million MT in 2003.

In 1995, Pertamina signed two 20-year contracts for Bontang's "H" train with the Korea Gas Company and the Chinese Petroleum Corporation (Taiwan). Indonesia also advanced plans to build a ninth LNG train (train I) at the Bontang

facility. The 3 million MT per year train is scheduled for 2007 and will increase annual production by 25 million MT.

Bontang experienced a variety of challenges that constrained its ability to provide gas for both LNG production and feedstock for national fertilizer plants in East Kalimantan. The three gas suppliers (Total, Vico and Chevron) experienced problems with underproduction or inconsistent production due to maintenance, accidents or low field performance, all of which led to gas supply shortages to the plant. Despite shortfalls, the GOI diverted gas from Bontang's producers so that Pertamina could sell subsidized gas to a national fertilizer plant group and two small Japanese-owned plants. In 2005, the GOI renegotiated Bontang contracts, cutting 42 cargoes and leaving Bontang with 335 cargoes for export.

## *Tangguh*

BP is the major shareholder and operator of the Tangguh LNG project, which encompasses three PSCs in the Berau-Bintuni Bay region of western Papua. The Tangguh gas fields contain 14.4 trillion cubic feet TCF of proven and certified natural gas reserves. The LNG processing plant will produce seven million MT of LNG per year from two initial processing trains. Following final Indonesian government approval in March 2005, BP appointed a consortium, composed of Kellogg Brown Root (KBR), JGC Corporation, and PT Pertamina, as contractors to build the Tangguh project. BP Indonesia holds a 37.16% stake, with the balance shared by CNOOC (16.96%), Mitsubishi (16.30%), Nippon (12.23%), KG (10.00%), and LNG Japan (7.35%).

The Indonesian government and BP have secured four market commitments for 7.65 million MT of Tangguh's LNG. In July 2004, the project won a contract to supply 550,000 MT of LNG per year to South Korean steel maker POSCO for 20 years. In August 2004, the project also signed another supply contract of 800,000 MT of LNG per year to South Korea's K Power for a 20-year term starting 2006. In addition, in 2002 the project won the contract to supply 2.6 million MT of LNG per year to China's Fujian province for a 25-year term beginning in 2007. It also signed a HoA in 2003 with the U.S. firm Sempra Energy to supply 3.7 million MT of LNG for a 20-year term beginning in 2007. Until Tangguh becomes operational LNG will likely come from the Bontang LNG facility in East Kalimantan. Tangguh's developers are also considering a PLN-proposed LNG regasification facility in Java as another target for LNG sales.

## **Sulawesi - The Fourth LNG Center?**

Plans to develop another LNG project and gas processing facility in Central Sulawesi still linger despite a failure to discover sufficient reserves to justify greenlighting the development. Pertamina continues with its exploration plan in an attempt to find new gas and increase reserves to at least 3.5 TCF. Pertamina is also still mulling over building a 2 million MT per year LNG plant to use gas from the Matindok block, Central Sulawesi. Matindok consists of the Donggi gas block, which is operated by Pertamina, and the Senoro-Toili gas block, which is jointly operated by Pertamina and Medco's Exspan Nusantara.

Donggi's potential initially captured the interest of foreign companies, including Chevron, Royal Dutch/Shell, Marathon Oil, Mitsui, CNOOC, PetroChina and Petronas. However a few years without significant discoveries of gas combined with a lack of clarity for LNG management and regulation resulted in several companies deciding to withdraw their expressions of interest in the project.

In 2005, Australia's LNG Limited announced a plan to build a 850,000 MT per year mini-LNG plant in Luwuk, Central Sulawesi close to the Senoro-Toili fields. Its 50 percent subsidiary, PT LNG Energi Utama, obtained foreign capital investment approval from the Investment Coordinating Board. Its joint venture partner, Maleo Energi Utama is a private Indonesian company with operations in Sulawesi area. During the year, Medco signed an exclusive agreement with LNG Limited to conduct a feasibility study for an 800 BCF, 20 year gas supply plan to the proposed LNG plant from the Senoro fields. The estimated \$240 million project is planned for start up in 2007.

LPG extraction plant since 2000. It produced 216,000 MT in 1999. Indonesia exported around 57 percent of its LPG production in 2004, valued at \$366 million, mainly to Japan (86 percent).

## **Liquid Petroleum Gas**

Total liquid petroleum gas (LPG) production declined slightly in 2004 to 1.9 million MT from 2.0 million MT in 2003. LPG production at five of Pertamina's refineries declined 1.6 percent to 896,400 MT in 2004 from 911,200 MT in 2003. LPG production dropped due to problems at the Balikpapan refinery coupled with decreased utilization of the Cilacap refinery. The Arun LNG plant has reported no LPG production from its